

Application No. 10/534,583

Reply to Office Action

*AMENDMENTS TO THE CLAIMS*RECEIVED
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This listing of claims replaces all prior versions, and listings, of claims in the application.

1.-17. (Canceled)

18. (Currently Amended) ~~Modified A modified~~ sarcosine oxidase which is a protein converted by adding, deleting, inserting or substituting at least one amino acid in an amino acid sequence which constitutes a protein having a sarcosine oxidase activity, characterized by having the comprising an amino acid sequence of SEQ ID NO: 1 in which at least valine at position 94 of SEQ ID NO: 1 is substituted with a different amino acid, wherein the protein has sarcosine oxidase activity and having a lowered action on L-proline compared with one before conversion a sarcosine oxidase of SEQ ID NO: 1.

19. (Canceled)

20. (Currently Amended) The modified sarcosine oxidase according to of claim 18, which wherein the protein having the sarcosine oxidase activity has homology of at least 80% 50% or more to an the amino acid sequence of SEQ ID NO: 1.

21.-26. (Canceled)

27. (Currently Amended) The modified sarcosine oxidase according to of claim 18, wherein characterized in that valine at position 94 of SEQ ID NO: 1 is substituted with glycine in the amino acid sequence of SEQ ID NO: 1.

28.-42. (Canceled)

43. (New) The modified sarcosine oxidase of claim 18, wherein at least one amino acid in a region corresponding to positions 82 to 92 or positions 354 to 366 of SEQ ID NO: 1 is substituted with a different amino acid.

44. (New) The modified sarcosine oxidase of claim 18, wherein at least one amino acid selected from the group consisting of a region corresponding to positions 89, 155, 166, 204, 213, 233, 240, 250, and 364 of SEQ ID NO: 1 is substituted with a different amino acid.

Application No. 10/534,583

Reply to Office Action

45. (New) The modified sarcosine oxidase of claim 18, wherein lysine at position 89 is substituted with arginine.

46. (New) The modified sarcosine oxidase of claim 18, wherein cysteine at position 155 is substituted with isoleucine.

47. (New) The modified sarcosine oxidase of claim 18, wherein asparagine at position 166 is substituted with lysine.

48. (New) The modified sarcosine oxidase of claim 18, wherein methionine at position 204 is substituted with alanine.

49. (New) The modified sarcosine oxidase of claim 18, wherein serine at position 213 is substituted with proline.

50. (New) The modified sarcosine oxidase of claim 18, wherein cysteine at position 233 is substituted with serine.

51. (New) The modified sarcosine oxidase of claim 18, wherein asparagine at position 240 is substituted with tyrosine.

52. (New) The modified sarcosine oxidase of claim 18, wherein glutamic acid at position 250 is substituted with glutamine.

53. (New) The modified sarcosine oxidase of claim 18, wherein lysine at position 322 is substituted with arginine.

54. (New) The modified sarcosine oxidase of claim 18, wherein alanine at position 364 is substituted with valine.

55. (New) The modified sarcosine oxidase of claim 18, wherein the protein consists of the amino acid sequence of SEQ ID NO: 1 in which optionally at least one amino acid in a region corresponding to positions 82 to 92 or positions 354 to 366 of SEQ ID NO: 1 is substituted with a different amino acid.

56. (New) The modified sarcosine oxidase of claim 18, wherein the protein consists of the amino acid sequence of SEQ ID NO: 1 in which optionally at least one amino

Application No. 10/534,583

Reply to Office Action

acid selected from the group consisting of a region corresponding to positions 89, 155, 166, 204, 213, 233, 240, 250, 322, and 364 of SEQ ID NO: 1 is substituted with a different amino acid.

57. (New) The modified sarcosine oxidase of claim 56, wherein lysine at position 89 is substituted with arginine, cysteine at position 155 is substituted with isoleucine, asparagine at position 166 is substituted with lysine, methionine at position 204 is substituted with alanine, serine at position 213 is substituted with proline, cysteine at position 233 is substituted with serine, asparagine at position 240 is substituted with tyrosine, glutamic acid at position 250 is substituted with glutamine, lysine at position 322 is substituted with arginine, and/or alanine at position 364 is substituted with valine.

58. (New) A gene encoding the modified sarcosine oxidase of claim 18.

59. (New) A gene encoding the modified sarcosine oxidase of claim 20.

60. (New) A gene encoding the modified sarcosine oxidase of claim 55.

61. (New) A gene encoding the modified sarcosine oxidase of claim 56.

62. (New) A gene encoding the modified sarcosine oxidase of claim 57.